

WHAT IS CLAIMED IS:

1. A method for estimating the noise appearance in an image, comprising the steps of:
 - a) forming a noise table representing noise magnitude vs. intensity of the image; and
 - b) generating a noise metric from the noise table, said noise metric representing the noise appearance in the image.
2. The method claimed in claim 1, wherein the step of forming a noise table includes the steps of:
 - a1) forming an input noise table representing noise magnitude vs. intensity of an input image;
 - a2) providing an image processing chain including one or more image transforms;
 - a3) determining an appropriate noise transform defining the effect that each image transform will have on the noise in the image; and
 - a4) applying the one or more noise transforms to the input noise table to produce the noise table representing an estimate of the noise in the image.
3. The method claimed in claim 2, wherein one of the transform steps is a digital image processing step.
4. The method claimed in claim 2, wherein one of the transform steps is an image rendering step.
5. The method claimed in claim 2, wherein one of the transform steps is human visual perception.
6. The method claimed in claim 2, wherein the input noise table represents the noise in a digital image produced by scanning a photographic film image.

7. The method claimed in claim 2, wherein the input noise table represent the noise in a digital image produced by an image sensor.

8. The method claimed in claim 2, wherein the input noise table represents the noise in a photographic film image.

9. The method claimed in claim 1, further comprising the step of weighting the noise table by a weighting function.

10. The method claimed in claim 9, wherein the weighting function represents a histogram of the image.

11. The method claimed in claim 1, wherein the noise table is formed as a function of intensities in the image.

12. The method claimed in claim 1, wherein the step of generating a noise metric includes the step of locating the peak value of the noise table to obtain the noise metric.

13. The method claimed in claim 5, further including the step of taking the logarithm of the peak value to obtain the noise metric.

14. The method claimed in claim 1, wherein the step of generating the noise metric includes the step of performing an integration or summation of the output noise table to obtain the noise metric.

15. The method claimed in claim 14, further including the step of taking the logarithm of the integration or summation to obtain the noise metric.

16. The method claimed in claim 2, further comprising the steps of: forming a predetermined input noise table for a specific image capture process;

using the predetermined input noise table to generate the noise metric for an image captured by the specific process.

17. The method claimed in claim 16, wherein the image capture process is a photographic process using a particular photographic film.

18. The method claimed in claim 16, wherein the image capture process is an image scanning process employing a particular film scanner.

19. The method claimed in claim 16, wherein the image capture process employs a particular digital camera.

20. The method claimed in claim 1, further comprising the step of using the noise metric to estimate the image quality.

21. The method claimed in claim 4, wherein the image rendering step is a photographic printing step.

22. The method claimed in claim 4, wherein the image rendering step is an ink jet printing step.

23. The method claimed in claim 4, wherein the image rendering step is a softcopy display step.

24. The method claimed in claim 4, wherein the image rendering step is a thermal printing step.

25. The method claimed in claim 4, wherein the image rendering step is an electrophotographic printing step.

26. The method claimed in claim 4, wherein the image rendering step is a laser printing step.

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